CLAIMS

What is claimed is:

1. A method for reducing current drain in a communication device, the method comprising the steps of:

detecting interference;

determining a frequency offset of the interference;

measuring a power level of the interference;

calculating a receiver linearity required to achieve a desired signal-to-interference ratio; and

adjusting the receiver linearity calculated in the calculating step to achieve the desired signal-to-interference ratio.

2. A method as recited in claim 1, further comprising the step of operating the communication device in a code division multiple access (CDMA) system.

3. A method as recited in claim 1, wherein the determining step includes estimating a signal spectrum of the interference products to determine the frequency offset of interference products and whether interference products are present within a receiver passband.

4. A method as recited in claim 1, wherein the determining step includes estimating a signal spectrum of the interference products to determine the frequency offset of interference products and whether interference products exceed a noise spectrum threshold within a receiver passband.

5. A method as recited in claim 1, wherein the measuring step includes an attenuation factor of the receiver at the frequency offset.

6. A method as recited in claim 1, wherein the adjusting step includes adjusting an analog-to-digital converter dynamic range to a level corresponding to the adjusted receiver linearity.

7. A method as recited in claim 1, wherein the measuring step includes measuring a transmit power level and frequency offset of the communication device, and wherein the desired signal-to-interference ratio of the calculating step is dependent upon the transmit power level and frequency offset.

8. A method as recited in claim 1, wherein the adjusting step include setting at least one of the group of current and gain to the receiver at a minimum level sufficient to achieve the desired signal-to-interference ratio.

9. A method as recited in claim 1, wherein the adjusting step include setting at least one of the group of current and gain to the receiver at a minimum level sufficient to achieve the desired linearity and dynamic range for the desired signal-to-interference ratio.

10. A method for reducing current drain in a communication device, the method comprising the steps of:

detecting interferers outside of a receiver passband of the communication device;

measuring a power level and frequency offset of the interferers;

determining whether intermodulation products exceed a noise spectrum threshold within the receiver passband, whereupon, if the intermodulation products exceed the threshold,

calculating a receiver linearity required to achieve a desired signal-to-interference ratio; and

adjusting the receiver linearity calculated in the calculating step to achieve the desired signal-to-interference ratio.

11. A method as recited in claim 10, wherein the detecting and measuring steps includes estimating a signal spectrum of the interference products.

12. A method as recited in claim 10, wherein the adjusting step includes adjusting a dynamic range of the receiver in accordance with the adjusted receiver linearity.

13. A method as recited in claim 10, wherein the calculating step includes calculating a third-order intercept point threshold to provide sufficient signal-to-interference, and wherein the adjusting step includes setting at least one of the group of current and gain to the receiver at a level sufficient to at least meet the third-order intercept point threshold.

14. A method for reducing current drain in a communication device, the method comprising the steps of:

detecting an interferer outside of a receiver passband of the communication device;

measuring power levels and frequency offsets of the interferer and a transmitter of the communication device;

determining whether crossmodulation products exceed a noise spectrum threshold within the receiver passband, whereupon, if the crossmodulation products exceed the noise spectrum threshold,

calculating a receiver linearity required to achieve a desired signal-to-interference ratio; and

adjusting the receiver linearity calculated in the calculating step to achieve the desired signal-to-interference ratio.

15. A method as recited in claim 14, wherein the detecting and measuring steps includes estimating a signal spectrum of the interference products of the interferer and transmitter.

16. A method as recited in claim 14, wherein the calculating step includes a normalization of the interference using an attenuation factor of the receiver at the frequency offset.

17. A method as recited in claim 14, wherein the adjusting step includes adjusting a dynamic range of the receive in accordance with the adjusted receiver linearity.

18. A method as recited in claim 14, wherein the calculating step includes calculating a third-order intercept point threshold to provide sufficient signal-to-interference, and wherein the adjusting step includes setting at least one of the group of current and gain to the receiver at a level sufficient to at least meet the third-order intercept point threshold.

19. A communication device with reduced current drain, the communication device comprising:

a transmitter operable at a variable transmit power level;

a receiver operable with variable linearity; and

a control circuit coupled to the transmitter and receiver, the control circuit operable to detect interference and control the receiver linearity, wherein if interference is detected the control circuit;

determines a frequency offset of the interference;

measures a power level of the interference;

calculates a receiver linearity required to achieve a desired signal-to-interference ratio; and

adjusts the receiver linearity to achieve the desired signal-to-interference ratio.

20. A communication device as recited in claim 19, wherein the control circuit estimates a signal spectrum of the interference products to determine whether interference products exceed a noise spectrum threshold within a receiver passband.

21. A communication device as recited in claim 19, wherein the control circuit adjusts a dynamic range of the receiver in accordance with the adjusted receiver linearity.

22. A communication device as recited in claim 19, wherein the control circuit adjusts at least one of the group of current and gain to the receiver at a minimum level sufficient to achieve the desired signal-to-interference ratio.

23. A communication device as recited in claim 19, wherein the control circuit calculates a third-order intercept point threshold to provide sufficient signal-to-interference and sets at least one of the group of current and gain to the receiver at a level sufficient to at least meet the third-order intercept point threshold.